

CAP™ Clean Air Plant BioOxidizer Model CAP5000

for Odor/VOC Control in Plants Owner's Manual

**Pre-Loaded With BioOx®
With BioStack® Cartridge inside**

**PLEASE MAKE SURE THESE INSTRUCTIONS ARE CAREFULLY READ AND
UNDERSTOOD BEFORE STARTING OR OPERATING YOUR CAP.**

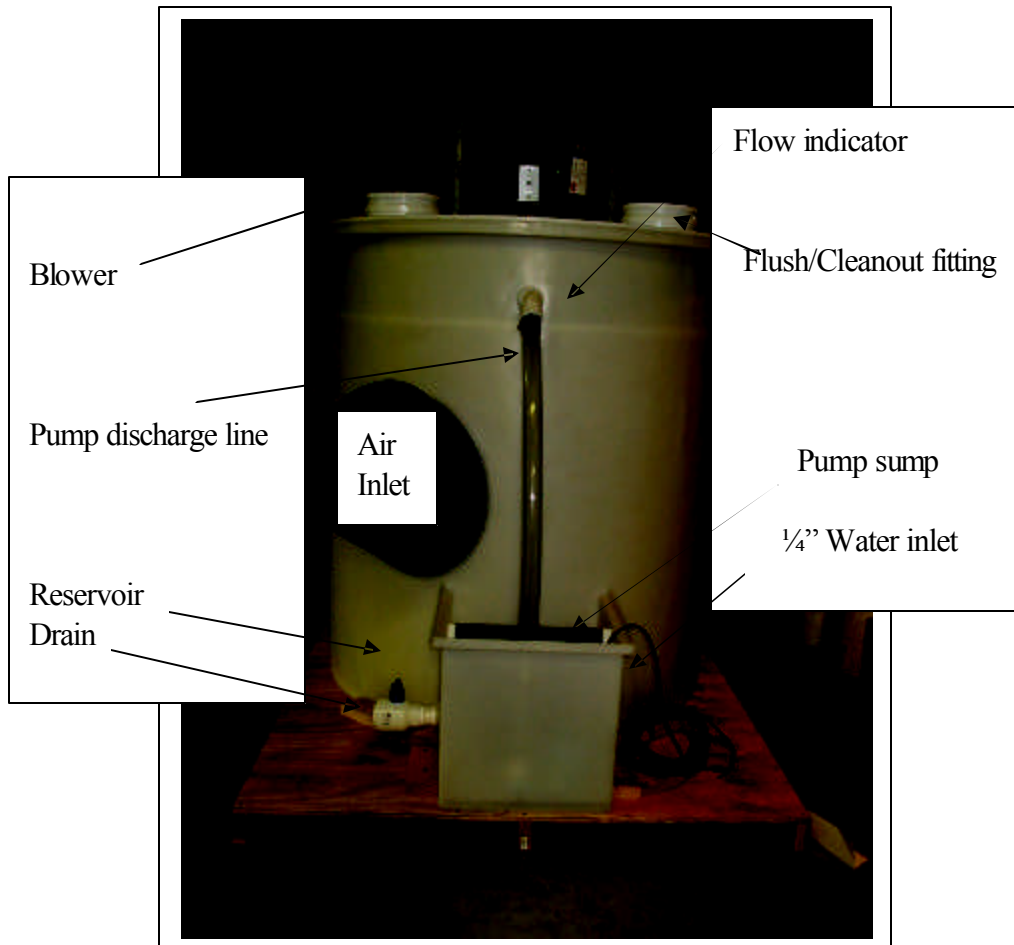
Distributed and Services By:

Bio-Cascade, Inc.
PO Box 258
Readville, MA 02137
www.Bio-Cascade.com
800-983-2420

**Congratulations! Your new CAP Clean Air Plant is the most advanced biological oxidation technology
for indoor and outdoor odor control.**

CAP5000 BioOxidizer

Figure 1. General Layout.



A. Safety guidelines

READ SAFETY GUIDELINES BEFORE OPERATING UNIT. Call Air & Water Solutions if you have any questions.

- Do not operate unit as shipped in explosive atmospheres. Hazardous location pumps and fans are available should you require them. Do not operate your equipment at a level greater than 10% Lower Explosivity Limit (LEL).
- Please keep in mind that explosion and fire safety limits are much higher than health safety limits. Your CAP is not intended for use as a health or fire safety control device. Please consult with a health and safety professional regarding any such issues.
- Do not operate if pump or fan cords are damaged, or if pumps and fans or blowers are not operating properly.
- To prevent accidental knockdown, keep away from general foot and other traffic. Secure to a solid support if necessary.
- Do not tip. Operating while unbalanced or while lying on side can result in electrical shock.
- Do not insert fingers or objects through blower fan, do not remove blower or blower housing when blower fan is rotating or plugged in.
- Do not place objects on top of unit.
- Do not move the CAP unless the electric cords for the fan and the pump have been disconnected.
- Do not operate CAP on wet surface. Never handle the pump or fan motor plugs and cords with wet hands or when standing on wet surface.
- During operation, maintain the water level of the reservoir (this may be done manually or with the automatic watering and the level control attachments). If there is not enough water to recirculate in the reservoir, the pump may be damaged, and the unit will not operate safely. Observe the flow indicator regularly to monitor fan operation.
- BE SURE THAT THE WATER LEVEL IS ALWAYS MAINTAINED AT THE INDICATED MARK. Low water levels will damage the pump.
- NOTE IF INSTALLING WATER LEVEL CONTROL FLOAT SWITCH: always inspect water level control float switch for proper operation. Mechanical float switches sometimes may fail in the open position. A malfunction could cause flooding! Turn off water inlet line when not in use. Limit the total amount of water available to the float switch by using a separate tank, or place a safety shutdown mechanism if prevention of water leakage is critical. Call us for a safety water flow shutdown mechanism.
- When not in use, do not stop water circulation by the pump for more than 7-14 days. Stagnant water can cause unpleasant smell. When not in use, drain and allow to dry for storage. Let blower operate without pump for a few hours or until unit dries. Just add water and BioOx and start up when ready to start unit again.
- Do not intentionally introduce any new form of pollutant to reservoir, i.e., smoke, hazardous or non-hazardous liquid, solvents, solids, sprays, etc. to test the unit's capabilities. The only allowed substances that can be poured into the CAP unit are: water and BioOx[®] enzymes.
- Wash hands with soap and water after handling BioOx[®]. Please read attached BioOx MSDS information sheet.

B. General information

Your CAP™ Clean Air Plant (CAP) consists of:

- A blower housing, consisting of a blower motor with a 120 V three-pronged plug, blower,
- A BioStack® cartridge with BioOx® enzymes installed,
- A submersible water pump with 120 V three-pronged plug,
- A water reservoir with float level control for the water, and
- An automatic water feed ¼" FNPT.

Additionally, BioOx® enzymes have been included with your CAP prior to shipping. Use only BioOx® enzymes, supplied by Air & Water Solutions, Inc., in your CAP™ Clean Air Plant.

How CAPs Work:

The CAP is an air cleaning unit, which biologically oxidizes organic chemicals and toxic gases and removes dusts and other particles from the air. This unit is specially designed for the reduction of **air pollutants and solid particles generated by industrial and commercial operations**. The CAP has been loaded with BioOx® enzymes (biomass) which are able to eliminate a broad spectrum of contaminants by biological digestion.

In order for the CAP to operate efficiently, it must be provided with water and oxygen for biological oxidation to take place. Oxygen is sufficiently supplied from the contaminated air stream, drawn in by the blower. Water is injected into the cartridge, continuously washing the unit. The solids settle and the water is re-used by recirculation from the pump inside the reservoir, back into the cartridge.

While the CAP is operating, the amount of water is gradually reduced by evaporation due to heating from pump operation, dry air from outside, and heat generation from the oxidation of pollutants. Because of this loss of water, you must supply water to the CAP periodically.

Do not perform any tests with chemicals or smoke or other materials on your CAP! Call us if you have any questions.

C. Installation

Find a proper place to install the CAP. It should be:

- In a good location to draw in the contaminated air, to capture it as close to the source as convenient.
- Away from frequent movements of people and vehicles.
- Away from dangerous, hot, or flammable sources.
- Secured to a solid support if necessary to prevent accidental knockdown.

- Convenient to a water source. NOTE IF INSTALLING WATER LEVEL CONTROL FLOAT SWITCH: always inspect water level control float switch for proper operation. Mechanical float switches sometimes may fail in the open position. A malfunction could cause flooding! Turn off water inlet line when not in use. Limit the total amount of water available to the float switch by using a separate tank, or place a safety shutdown mechanism if prevention of water leakage is critical.
- Easily accessible for maintenance and draining.

D. Layout of the CAP UNIT .

The layout of your CAP5000 is shown in Figure 1.

Air enters the air inlet, and is cleaned in the CAP, exiting at the blower outlet. The CAP creates a Clean Air Zone which attracts air contaminants for capture. The enzymes from the BioOx digest all the organic contaminants. From time to time, the reservoir must be cleaned to remove any non-digestibles such as brake dust, carbon particles, or heavy metals. To learn more about the Clean Air Zone, please check our website or call us.

E. Start-up and Operating Procedure

1. Fill reservoir with water and BioOx at the levels indicated.

F. Cleaning the Reservoir and Adding BioOx® enzymes

We recommend adding BioOx® enzymes to your CAP5000 at the rate of ½ to 1 gallons per month. Add this amount every two weeks for heavier use. Using a standard wet/dry shop vac, remove any solids by vacuuming the bottom 3-5 gallons of water from the reservoir every 2 or so weeks or as needed, and add the BioOx when filling back up with water. Use only BioOx® enzymes in your CAP. To order BioOx® enzymes, call Air & Water Solutions, Inc. at 1-877-661-5192 (or call 973-661-5192).

To add BioOx® enzymes to your CAP unit:

1. Shake bottle containing BioOx® enzymes well.
2. Add ½ to 1 gallon per month BioOx® directly into reservoir.
3. Add water to the indicated level. Do not overfill reservoir.
4. Check to be sure pump and blower are running and working at all times.

G. Troubleshooting for the CAP:

If water flow slows or ceases or water consumption decreases to almost nothing, check for an obstruction in the recirculation line or for a malfunctioning pump. To clear the line:

1. Unplug the water pump and blower.
2. Close the automatic water inlet valve.
3. Disconnect the pump discharge water line.
4. Clean or replace the line and pump as needed.
5. This should clear any blockage in the CAP.
6. Reattach water line.

H. Vacation or Intentional Shut Down

When not in use for an extended period (to shut down):

1. Disconnect the water pump;
2. Close the automatic water inlet lines.
3. Drain out each reservoir's water by opening the drain valve over a suitable drain or collect in a suitable container.
4. Allow to dry by running blower for a few hours or overnight.
5. Disconnect blower.

You can store the CAP for years in this manner. When ready to re-use, just refill with water, add BioOx® enzymes, and start up.

I. Maintenance

Every six months (or as needed), maintain your CAP as follows:

Clean out the water in the CAP using the following procedure.

1. Unplug the blower and the water pump.
2. Drain the water reservoir into an adequate container by opening the drain valve, or using a special pump or wet/dry shop vac.
3. Flush several gallons of tap water into the blue hose connection at the top of the unit below the fan housing, so that the water flow can clear any accumulated debris.
4. Repeat steps 1-4 until the water dumped out from the CAP is clear.
5. Refill with water. Add BioOx[®] enzymes.

J. Question or comments regarding your CAP should be directed to:

Air & Water Solutions, Inc.

P.O. Box 627

Nutley, NJ 07110

Tel. : 973-661-5192

Fax : 973-661-3713

aws@cleanairplant.com

www.cleanairplant.com

MSDS
Material Safety Data Sheet

BioOx[®]

Common Names: BioOx[®], Biomass, Biocatalyst, Enzymes

Identification

Contents:

95% water

5% biomass

CAS/ DOT Number: unlisted

Hazard Summary

This biomass is a non-pathogenic, non-genetic engineered, consortium of micro-organisms and enzymes used for cleaning air, water, and soil. Non-flammable.

Non-explosive.

Workplace Exposure Limits

No exposure limitations.

Ways of Reducing Exposure

Wash with soap and water.

Health Hazard Information

Acute Health Effects: None

Chronic Health Effects: None

Workplace Controls and Practices

No exposure limitations.

For more information, contact:

Air & Water Solutions, P.O. Box 627, Nutley, NJ 07110

Phone: 973-661-5192 FAX: 973-661-3713 Email: awsi@cleanairplant.com

Website www.cleanairplant.com